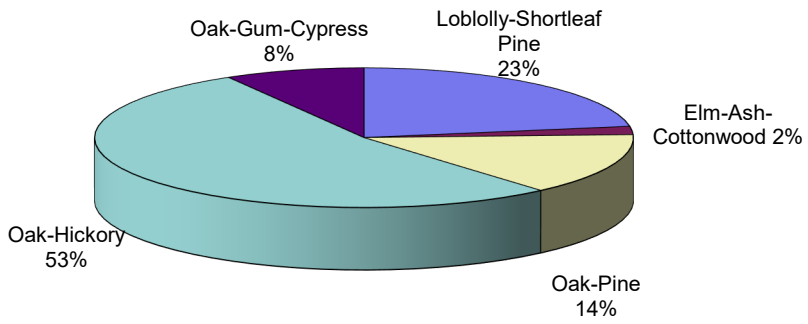
Oklahoma

Forest Health Highlights 2018

The Resource

Oklahoma's forests covers over 12 million acres, about 28% of the state's land area. Some 6.9 million acres of the states forested land is in nonindustrial private ownership, while 707,867 acres are in National Forests. Oklahoma's forests are prized for their scenic beauty, supporting tourism and outdoor recreation and providing wildlife habitat throughout the state. Major forest types in the state include oak-hickory, loblolly and shortleaf pine, mixed oak-pine, and oak-gum-cypress.

Table 1: Oklahoma Forest Type Distribution



Forest health monitoring (FHM) activities are cooperative efforts between the USDA Forest Service and the Oklahoma Department of Agriculture Forestry Services. The FHM program in Oklahoma includes regular aerial and ground surveys to detect forest damage.

Special Issues

Key issues which state and federal programs are addressing cooperatively include:

- Sustainable management of private forest lands
- Protection and development of urban and community forest resources
- Increasing participation by underserved citizens in forestry programs
- Update of Oklahoma's Gypsy Moth and Emerald Ash Borer Action Plans
- Education efforts on present and potential pests
- Utilizing the US Forest Service Forest Disturbance Monitor and ForWarn

Forest Influences

Southern pine beetle Aerial Detection:
Oklahoma Forestry Services flew for aerial detection over 800,000 acres in McCurtain, LeFlore, and Pushmataha counties. The purpose of the flight was to monitor the health of the forests as well as look for early indications of any major health problems. Early detection of southern pine beetle is the primary purpose of these flights, but other aspects are monitored as well such as other bark beetles, flooding induced mortality, and discoloration of hardwood species.

Figure 1: A view from the plane during SPB Flights

Figure 2: OFS Forest Range Steve Scantling utilizing the DMSM program during SPB Flights

***Ips* engraver beetle:**

The 2017 aerial flights showed some areas of pine mortality, but none that appeared to be associated with southern pine beetle. In 2015-2016 there was a major *Ips* outbreak across southeastern Oklahoma to a scale that was approaching that typical of southern pine beetle. The 2018 showed a recovery from this outbreak through early salvage cuts where possible and timber stand improvements. The levels of bark beetle mortality are back to the normal level of scattered individuals or small groups.

Figure 1: Edge of a 3 acre area of Ips caused mortality from 2016

Gypsy moth:
USDA Animal and Plant Health Inspection Service (APHIS) had no positive samples collected in this year's survey.

Emerald ash borer:
The first positive identification of emerald ash borer occurred in October, 2016. The individual was found in a trap in Grove Oklahoma. There have been no more positive ID's to date. Oklahoma Forestry Services continues to work with cities and other agencies to introduce and implement an Emerald Ash Borer Action Plan. City centers and towns have adopted this action plan and adapted it to suit their individual circumstances, oftentimes with the help of Oklahoma Forestry Services. Tulsa was the first to develop a city specific action plan. Tulsa has performed an inventory to measure and locate the ash population and have used that to implement their EAB plan. Oklahoma City has completed an inventory on all of their city parks and are in the process of a city wide inventory. Both city's inventories were focused on ash but also collected data on all tree species, allowing for better planning in the future to maximize species diversity. As a result of increased outreach, both by OFS as well as news outlets, private landowners

have become more aware of their trees and forests and requested technical assistance in relation to their ash trees.

Sawmills Map:
Throughout Oklahoma, one of the major factors contributing to poor forest health is the lack of forest management. The forest type most impacted by the lack of management in Oklahoma is the Cross Timbers, but all of the forest types throughout the state suffer to some degree. Environmental factors such as the prolonged drought in 2011-2012 followed by shorter droughts since then have caused the forests that are already overstocked to decline. One of the reasons for lack of management, especially in central Oklahoma and away from the traditional timber markets, is the lack of timber buyers. OFS has worked to locate new sawmills throughout the state, update the information on those already on record, and create an interactive map of their locations in order to replace the paper directory.

Landowners can now view the area around them to find what sawmills exist, to learn what size and species the mills accept, and answer questions such as; will the sawmill purchase timber, cut timber, and pick up timber from site. Since many of these sawmills are small family operations, often times operating out of a barn, their presence was not as apparent as those in areas with traditional markets. The presence of this mills map has put in contact those with wood and those wanting to purchase timber, and as a result has begun to increase management on forests that were previously deemed unproductive.

The city of Oklahoma City has also put this new resource to use and, in partnership with an Urban Forestry program, has begun to mill trees that needed to be removed from the city parks instead of sending them to the landfill.

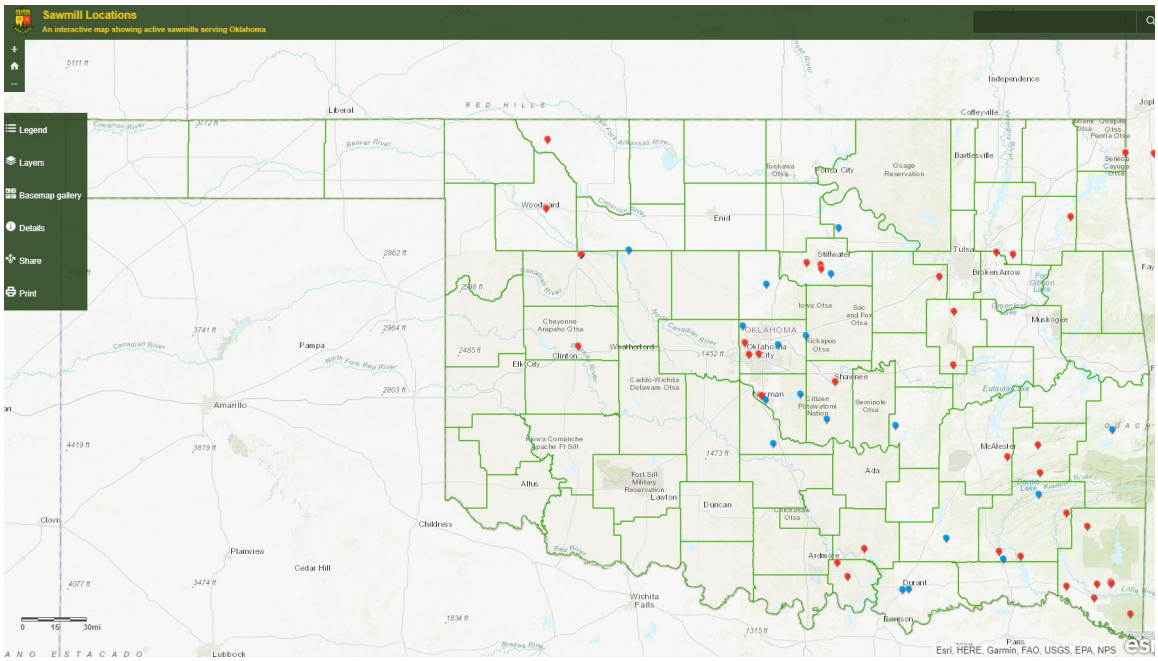


Figure 4: The Sawmills map for Oklahoma

Partnering with State Parks:
Oklahoma Forestry Services has partnered with Lake Murray State Park to create a demonstration area for Cross Timbers management with the primary objective of Forest Health. A majority of the Cross Timbers Ecosystem have gone unmanaged for multiple reasons including the lack of financial incentives, slow growth rates, and limited general knowledge of Cross Timbers management and its benefits. The park wishes to increase the overall health of the forests, which have gone unmanaged since the parks establishment in 1937. The primary concerns are related to overstocked forests, encroachment of eastern redcedar winged elm, and greenbrier into the understory preventing the natural oak regeneration, and disease such as *Hypoxylon*. By managing the state park and using it as a demonstration area OFS has the opportunity to reach a wider scale of the public to promote and display active management practices, the benefits, and processes involved.

In FY 2018, OFS has inventoried over half ot the 12,500 acre State Park and has begun writing management plans for the management units within. Management will likely begin in the winter of 2018-2019 with a prescribed burn in one high use area to be followed with a timber stand improvement in necessary. There are a limited number of sawmills in the area, but with the creation of the sawmill map, more are being located. If the local sawmills are interested, some of the trees that need to be removed can be sent to be milled.

Figure 5: Cross Timbers along a hiking trail at Lake Murray State Park

Tree mortality from prolonged drought:
This continues to be a major influence affecting Oklahoma's forest health. Oklahoma's forests have shown signs of decline over the past couple of years as a result of the prolonged drought that occurred throughout 2011 and 2012. The species that are most

affected are oaks, especially black oak and blackjack oak. Following the drought conditions Hypoxylon canker has set in thus exacerbating the problem.

Non-Native insects of concern

- Emerald Ash Borer
- Thousand Canker Disease (Walnut twig Beetle)
- Gypsy Moth
- Asian Long-Horn Beetle
- Asian Gypsy Moth
- Mexican soapberry borer

Increased education on forest health:

Oklahoma Forestry Services has put an increased emphasis on forest health education. OFS has used the initial detection of emerald ash borer and the increased public awareness to discuss the transportation of many of the forest pests listed above. Other causes of decline, such as drought induced mortality and overstocked forests have also been a focus when working with landowners, especially when in the Cross Timbers Forests of central Oklahoma.

Demonstration Areas:

Oklahoma Forestry Services have a couple formal demonstration areas scattered throughout the state. The one with the longest history of use is located on the Pushmataha Wildlife Management Area and has been used to demonstrate the effects of forest management in the forms of thinning and burn rotations. The area has multiple parcels of land with signage showing the outcome of different combinations of thinning and burn rotations allowing landowners to make more informed decisions on what practices they need to reach their end goals with the aid of visual representations.

The parcel of land behind the Broken Bow office in South East Oklahoma was established to demonstrate forest management. After ice storms in the early 2000's the area has become inundated with privet. Currently, OFS is working to remove the privet and utilizing the area to demonstrate invasive species management as well as sustainable forest management.

Figure 6: Area Forester Craig Marquardt pointing out signs of bark beetles at the Broken Bow Demonstration Area

There is also a demonstration area in North Central Oklahoma near OSU that focuses on eastern redcedar control and cross timbers management. Eastern redcedar has become a problem due to pasture/rangelands being abandoned becoming eastern redcedar dominated forests. These areas have then led to the shade tolerant eastern redcedar encroaching into the surrounding oak hickory forests and dominating the understory, outcompeting the less shade tolerant species native to that ecosystem.

These previously mentioned areas are excellent resources for demonstrating forest management to landowners, however they all require some form of guided access for the public to visit and glean the information available. OFS has been working to create less formal demonstration areas that are in high use settings. OFS is heavily involved with management in other WMA's, mostly through prescribed fire, and has begun getting more involved with the State Parks such as the previously mentioned Lake Murray. These areas, especially State Parks, are heavy use areas that, with some educational resources such as signage and media presses, can showcase the benefits of forest management to the general public.

Southern Pine Beetle Prevention Program
This year two contracts were completed under the Southern Pine Beetle Prevention Program and four more thinning practices were newly enrolled. These completed contracts covered 72.5 acres in Southeast Oklahoma. There are four active contracts treating 191 additional acres.

http://www.forestry.ok.gov/Websites/forestry/Images/SPB%20Cost-Share%20Application.pdf

Based upon our review of cost-share rates paid to landowners participating in the Southern Pine Beetle prevention program, amended our program and use the following rates for new applications as of October 1, 2013:

- First Commercial Thinning (CTH) – Flat rate of $50 per acre (current rate is $40)
- Pre-Commercial Thinning (PCT) – 50% of actual cost up to $75 per acre (current rate is up to $60)
- Consulting fees for planning/harvest assistance – 50% of actual cost up to $10 per acre (no change)

Forest Stewardship Program
There were 50 Stewardship Plans and 23 Management Plans written covering 8,168 acres, all of which included a section on Forest Health. Forest Health was discussed more in depth with the landowners while the plans were being written.

Oklahoma Pest Action Council
The Council is comprised of plant health specialist from Universities, Federal and State partners. It was primarily formed to produce a collaborative Emerald Ash Borer Preparedness Plan for Oklahoma.

Oklahoma's Forest Statistics

- Of the 50 states, Oklahoma ranks 20th in size, with an area of 43,954,560 acres, over 800,000 acres of which are covered by water and approximately 12,000,000 acres are covered by forests.

Table 2: Eastern Oklahoma, Area of Timberland (productive forest land) by Ownership Group

Area of timberland by forest-type and ownership group, East Oklahoma, 2008						
Forest-type	All ownerships	U.S. Forest Service	Other federal	State and local government	Forest industry	Nonindustrial private
			thousand acres			
Softwood types (Pines and other softwoods)	1096.8	159.2	51.1	28.9	350.6	507.0
Hardwood types (oak, elm, ash, hickory, etc.)	3971.0	98.3	244.0	135.2	214.8	3278.6
Nonstocked	35.3	0.0	1.4	0.0	2.9	31.0
All groups	5103.1	257.5	296.5	164.1	568.3	3816.6

Table 3: Oklahoma Forest and Paper Industry Employment and Annual Payroll Income

Oklahoma Wood-Related Sectors		
Sectors	**Employment**	**Annual Payroll Income**
Forestry & Logging	895	$31,562,000
Wood Products	4,075	$176,234,000
Pulp & Paper	2,943	$205,063,000
Furniture	2,788	$100,377,000
Total	10,701	$513,236,000

Table 4: Economic Impacts of Oklahoma's privately-Owned Forests

Forestry-Related Industries	**All Forests**	**Privately-owned Forests**
Employment	7,982	7,902
Payrolls	$300,343,142	$297,339,710
Annual Sales	$2,758,886,681	$2,731,297,815
Contribution to the State GDP	$1,068,876,000	$1,058,187,240

Source: Forest2Market, National Alliance of Forest Owners, 2009.